



SEQUENCE LISTING

<110> FEDER, J. N.  
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<120> A NOVEL HUMAN G-PROTEIN COUPLED RECEPTOR, HGPRBMY5,  
EXPRESSED HIGHLY IN BRAIN AND OVARIAN TISSUES

<130> D0041NP

<140> 09/965,536

<141> 2001-09-26

<150> 60/235,713

<151> 2000-09-27

<150> 60/261,781

<151> 2001-01-16

<150> 60/306,605

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<151> 2001-08-03

<160> 61

<170> PatentIn Ver. 2.1

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1000

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Lys Asn Lys Ile His Ser Leu Pro Asp Lys Val Phe Ile Lys Tyr Thr	130	135	140
Lys Leu Lys Lys Ile Phe Leu Gln His Asn Cys Ile Arg His Ile Ser	145	150	155
Arg Lys Ala Phe Phe Gly Leu Cys Asn Leu Gln Ile Leu Tyr Leu Asn	165	170	175
His Asn Cys Ile Thr Thr Leu Arg Pro Gly Ile Phe Lys Asp Leu His	180	185	190
Gln Leu Thr Trp Leu Ile Leu Asp Asp Asn Pro Ile Thr Arg Ile Ser	195	200	205
Gln Arg Leu Phe Thr Gly Leu Asn Ser Leu Phe Phe Leu Ser Met Val	210	215	220
Asn Asn Tyr Leu Glu Ala Leu Pro Lys Gln Met Cys Ala Gln Met Pro	225	230	235
Gln Leu Asn Trp Val Asp Leu Glu Gly Asn Arg Ile Lys Tyr Leu Thr	245	250	255
Asn Ser Thr Phe Leu Ser Cys Asp Ser Leu Thr Val Leu Phe Leu Pro	260	265	270
Arg Asn Gln Ile Gly Phe Val Pro Glu Lys Thr Phe Ser Ser Leu Lys	275	280	285
Asn Leu Gly Glu Leu Asp Leu Ser Ser Asn Thr Ile Thr Glu Leu Ser	290	295	300
Pro His Leu Phe Lys Asp Leu Lys Leu Leu Gln Lys Leu Asn Leu Ser	305	310	315
Ser Asn Pro Leu Met Tyr Leu His Lys Asn Gln Phe Glu Ser Leu Lys	325	330	335

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 Asn Phe Arg Tyr Cys Ser Tyr Ala Pro His Val Arg Ile Cys Met Pro  
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 Val Tyr Leu Phe Phe Val Gly Ile Phe Asp Ile Lys Tyr Arg Gly Gln  
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 625 630 635 640  
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 675 680 685  
 Leu His Lys His Gln Arg Lys Ser Ile Phe Lys Ile Lys Lys Lys Ser  
 690 695 700  
 Leu Ser Thr Ser Ile Val Trp Ile Glu Asp Ser Ser Ser Leu Lys Leu  
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Phe Pro Cys Gly Asn Leu Thr Lys Cys Leu Pro Arg Ala Phe His Cys
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Asp Gly Lys Asp Asp Cys Gly Asn Gly Ala Asp Glu Glu Asn Cys Gly
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Asp Thr Ser Gly Trp Ala Thr Ile Phe Gly Thr Val His Gly Asn Ala
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Asn Ser Val Ala Leu Thr Gln Glu Cys Phe Leu Lys Gln Tyr Pro Gln
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Cys Cys Asp Cys Lys Glu Thr Glu Leu Glu Cys Val Asn Gly Asp Leu
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Lys Ser Val Pro Met Ile Ser Asn Asn Val Thr Leu Leu Ser Leu Lys
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Arg Lys Ala Phe Phe Gly Leu Cys Asn Leu Gln Ile Leu Ile Leu Asp  
 165 170 175

Asp Asn Pro Ile Thr Arg Ile Ser Gln Arg Leu Phe Thr Gly Leu Asn  
 180 185 190

Ser Leu Phe Phe Leu Ser Met Val Asn Asn Tyr Leu Glu Ala Leu Pro  
 195 200 205

Lys Gln Met Cys Ala Gln Met Pro Gln Leu Asn Trp Val Asp Leu Glu  
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Gly Asn Arg Ile Lys Tyr Leu Thr Asn Ser Thr Phe Leu Ser Cys Asp  
 225 230 235 240

Ser Leu Thr Val Leu Phe Leu Pro Arg Asn Gln Ile Gly Phe Val Pro  
 245 250 255

Glu Lys Thr Phe Ser Ser Leu Lys Asn Leu Gly Glu Leu Asp Leu Ser  
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Ser Asn Thr Ile Thr Glu Leu Ser Pro His Leu Phe Lys Asp Leu Lys  
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Leu Leu Gln Lys Leu Asn Leu Ser Ser Asn Pro Leu Met Tyr Leu His  
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Lys Asn Gln Phe Glu Ser Leu Lys Gln Leu Gln Ser Leu Asp Leu Glu  
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Arg Ile Glu Ile Pro Asn Ile Asn Thr Arg Met Phe Gln Pro Met Lys  
 325 330 335

Asn Leu Ser His Ile Tyr Phe Lys Asn Phe Arg Tyr Cys Ser Tyr Ala  
 340 345 350

Pro His Val Arg Ile Cys Met Pro Leu Thr Asp Gly Ile Ser Ser Phe  
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Glu Asp Leu Leu Ala Asn Asn Ile Leu Arg Ile Phe Val Trp Val Ile  
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Ala Phe Ile Thr Cys Phe Gly Asn Leu Phe Val Ile Gly Met Arg Ser  
 385 390 395 400



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Cys	Cys	Ala	Asp	Cys	Leu	Met	Gly	Val	Tyr	Leu	Phe	Phe	Val	Gly	Ile	420	425	430
Phe	Asp	Ile	Lys	Tyr	Arg	Gly	Gln	Tyr	Gln	Lys	Tyr	Ala	Leu	Leu	Trp	435	440	445
Met	Glu	Ser	Val	Gln	Cys	Arg	Leu	Met	Gly	Phe	Leu	Ala	Met	Leu	Ser	450	455	460
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Leu	Val	Ile	Val	Phe	Pro	Phe	Ser	Asn	Ile	Arg	Pro	Gly	Lys	Arg	Gln	485	490	495
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Val	Ile	Pro	Phe	Trp	Asn	Lys	Asp	Tyr	Phe	Gly	Asn	Phe	Tyr	Gly	Lys	515	520	525
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Ser	Lys	Gly	Tyr	Ser	Leu	Gly	Ile	Phe	Leu	Gly	Val	Asn	Leu	Leu	Ala	545	550	555
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Val	Ala	Val	Ala	Asn	Arg	Phe	Phe	Phe	Ile	Val	Phe	Ser	Asp	Ala	Ile	595	600	605
Cys	Trp	Ile	Pro	Val	Phe	Val	Val	Lys	Ile	Leu	Ser	Leu	Phe	Arg	Val	610	615	620
Glu	Ile	Pro	Asp	Thr	Met	Thr	Ser	Trp	Ile	Val	Ile	Phe	Phe	Leu	Pro	625	630	635
Val	Asn	Ser	Ala	Leu	Asn	Pro	Ile	Leu	Tyr	Thr	Leu	Thr	Thr	Asn	Phe	645	650	655

Phe Lys Asp Lys Leu Lys Gln Leu Leu His Lys His Gln Arg Lys Ser  
660 665 670

Ile Phe Lys Ile Lys Lys Lys Ser Leu Ser Thr Ser Ile Val Trp Ile  
675 680 685

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<212> DNA

<213> Artificial Sequence

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<213> Artificial Sequence

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<223> Description of Artificial Sequence:synthetic  
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 Ser Pro Pro Thr Leu Cys Ser Val Glu Gly Thr Phe His Cys Asp Asp  
 35 40 45  
 Gly Met Leu Gln Cys Val Leu Met Gly Ser Lys Cys Asp Gly Val Ser  
 50 55 60  
 Asp Cys Glu Asn Gly Met Asp Glu Ser Val Glu Thr Cys Gly Cys Leu  
 65 70 75 80  
 Gln Ser Glu Phe Gln Cys Asn His Thr Thr Cys Ile Asp Lys Ile Leu  
 85 90 95  
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 100 105 110  
 Cys Asp Ile Tyr Ile Cys Pro Leu Gly Thr His Val Lys Trp His Asn  
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 Thr Glu Phe Lys Cys Asn Asn Ser Gln Cys Val Ala Phe Gly Asn Leu  
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 180 185 190  
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195					200					205						
Lys	Lys	Glu	Phe	Val	Cys	Asp	Gly	Trp	Val	Asp	Cys	Lys	Leu	Thr	Phe	
210					215					220						
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Ser	Asp	Thr	Arg	Cys	Ile	Gln	Lys	Ser	Asn	Val	Cys	Asp	Gly	Tyr	Cys	
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Asp	Cys	Lys	Thr	Cys	Asp	Asp	Glu	Glu	Val	Cys	Ala	Asn	Asn	Thr	Tyr	
260					265					270						
Gly	Cys	Pro	Met	Asp	Thr	Lys	Tyr	Met	Cys	Arg	Ser	Ile	Tyr	Gly	Glu	
275					280					285						
Pro	Arg	Cys	Ile	Asp	Lys	Asp	Asn	Val	Cys	Asn	Met	Ile	Asn	Asp	Cys	
290					295					300						
Arg	Asp	Gly	Asn	Val	Gly	Thr	Asp	Glu	Tyr	Tyr	Cys	Ser	Asn	Asp	Ser	
305					310					315					320	
Glu	Cys	Lys	Asn	Phe	Gln	Ala	Ala	Met	Gly	Phe	Phe	Tyr	Cys	Pro	Glu	
325					330					335						
Glu	Arg	Cys	Leu	Ala	Lys	His	Leu	Tyr	Cys	Asp	Leu	His	Pro	Asp	Cys	
340					345					350						
Ile	Asn	Gly	Glu	Asp	Glu	Gln	Ser	Cys	Leu	Ala	Pro	Pro	Lys	Cys	Ser	
355					360					365						
Gln	Asp	Glu	Phe	Gln	Cys	His	His	Gly	Lys	Cys	Ile	Pro	Ile	Ser	Lys	
370					375					380						
Arg	Cys	Asp	Ser	Val	His	Asp	Cys	Val	Asp	Trp	Ser	Asp	Glu	Met	Asn	
385					390					395					400	
Cys	Glu	Asn	His	Gln	Cys	Ala	Ala	Asn	Met	Lys	Ser	Cys	Leu	Ser	Gly	
405					410					415						
His	Cys	Ile	Glu	Glu	His	Lys	Trp	Cys	Asn	Phe	His	Arg	Glu	Cys	Pro	
420					425					430						
Asp	Gly	Ser	Asp	Glu	Lys	Asp	Cys	Asp	Pro	Arg	Pro	Val	Cys	Glu	Ala	
435					440					445						
Asn	Gln	Phe	Arg	Cys	Lys	Asn	Gly	Gln	Cys	Ile	Asp	Pro	Leu	Gln	Val	

450		455		460	
Cys Val Lys Gly Asp Lys Tyr Asp Gly Cys Ala Asp Gln Ser His Leu					
465		470		475	480
Ile Asn Cys Ser Gln His Ile Cys Leu Glu Gly Gln Phe Arg Cys Arg					
	485		490		495
Lys Ser Phe Cys Ile Asn Gln Thr Lys Val Cys Asp Gly Thr Val Asp					
	500		505		510
Cys Leu Gln Gly Met Trp Asp Glu Asn Asn Cys Arg Tyr Trp Cys Pro					
	515		520		525
His Gly Gln Ala Ile Cys Gln Cys Glu Gly Val Thr Met Asp Cys Thr					
	530		535		540
Gly Gln Lys Leu Lys Glu Met Pro Val Gln Gln Met Glu Glu Asp Leu					
545		550		555	560
Ser Lys Leu Met Ile Gly Asp Asn Leu Leu Asn Leu Thr Ser Thr Thr					
	565		570		575
Phe Ser Ala Thr Tyr Tyr Asp Lys Val Thr Tyr Leu Asp Leu Ser Arg					
	580		585		590
Asn His Leu Thr Glu Ile Pro Ile Tyr Ser Phe Gln Asn Met Trp Lys					
	595		600		605
Leu Thr His Leu Asn Leu Ala Asp Asn Asn Ile Thr Ser Leu Lys Asn					
	610		615		620
Gly Ser Leu Leu Gly Leu Ser Asn Leu Lys Gln Leu His Ile Asn Gly					
625		630		635	640
Asn Lys Ile Glu Thr Ile Glu Glu Asp Thr Phe Ser Ser Met Ile His					
	645		650		655
Leu Thr Val Leu Asp Leu Ser Asn Gln Arg Leu Thr His Val Tyr Lys					
	660		665		670
Asn Met Phe Lys Gly Leu Lys Gln Ile Thr Val Leu Asn Ile Ser Arg					
	675		680		685
Asn Gln Ile Asn Ser Ile Asp Asn Gly Ala Phe Asn Asn Leu Ala Asn					
	690		695		700
Val Arg Leu Ile Asp Leu Ser Gly Asn Val Ile Lys Asp Ile Gly Gln					

705		710		715		720
Lys Val Phe Met Gly Leu Pro Arg Leu Val Glu Leu Lys Thr Asp Ser						
	725		730		735	
Tyr Arg Phe Cys Cys Leu Ala Pro Glu Gly Val Lys Cys Ser Pro Lys						
	740		745		750	
Gln Asp Glu Phe Ser Ser Cys Glu Asp Leu Met Ser Asn His Val Leu						
	755		760		765	
Arg Val Ser Ile Trp Val Leu Gly Val Ile Ala Leu Val Gly Asn Phe						
	770		775		780	
Val Val Ile Phe Trp Arg Val Arg Asp Phe Arg Gly Gly Lys Val His						
785		790		795		800
Ser Phe Leu Ile Thr Asn Leu Ala Ile Gly Asp Phe Leu Met Gly Val						
	805		810		815	
Tyr Leu Leu Ile Ile Ala Thr Ala Asp Thr Tyr Tyr Arg Gly Val Tyr						
	820		825		830	
Ile Ser His Asp Glu Asn Trp Lys Gln Ser Gly Leu Cys Gln Phe Ala						
	835		840		845	
Gly Phe Val Ser Thr Phe Ser Ser Glu Leu Ser Val Leu Thr Leu Ser						
	850		855		860	
Thr Ile Thr Leu Asp Arg Leu Ile Cys Ile Leu Phe Pro Leu Arg Arg						
865		870		875		880
Thr Arg Leu Gly Leu Arg Gln Ala Ile Ile Val Met Ser Cys Ile Trp						
	885		890		895	
Val Leu Val Phe Leu Leu Ala Val Leu Pro Leu Leu Gly Phe Ser Tyr						
	900		905		910	
Phe Glu Asn Phe Tyr Gly Arg Ser Gly Val Cys Leu Ala Leu His Val						
	915		920		925	
Thr Pro Asp Arg Arg Pro Gly Trp Glu Tyr Ser Val Gly Val Phe Ile						
	930		935		940	
Leu Leu Asn Leu Leu Ser Phe Val Leu Ile Ala Ser Ser Tyr Leu Trp						
945		950		955		960
Met Phe Ser Val Ala Lys Lys Thr Arg Ser Ala Val Arg Thr Ala Glu						

965										970										975										
Ser	Lys	Asn	Asp	Asn	Ala	Met	Ala	Arg	Arg	Met	Thr	Leu	Ile	Val	Met															

Ser Phe Ala Gly Phe Gly Asp Leu Glu Lys Ile Glu Ile Ser Gln Asn			
65	70	75	80
Asp Val Leu Glu Val Ile Glu Ala Asp Val Phe Ser Asn Leu Pro Lys			
	85	90	95
Leu His Glu Ile Arg Ile Glu Lys Ala Asn Asn Leu Leu Tyr Ile Asn			
	100	105	110
Pro Glu Ala Phe Gln Asn Leu Pro Ser Leu Arg Tyr Leu Leu Ile Ser			
	115	120	125
Asn Thr Gly Ile Lys His Leu Pro Ala Val His Lys Ile Gln Ser Leu			
	130	135	140
Gln Lys Val Leu Leu Asp Ile Gln Asp Asn Ile Asn Ile His Ile Val			
145	150	155	160
Ala Arg Asn Ser Phe Met Gly Leu Ser Phe Glu Ser Val Ile Leu Trp			
	165	170	175
Leu Ser Lys Asn Gly Ile Glu Glu Ile His Asn Cys Ala Phe Asn Gly			
	180	185	190
Thr Gln Leu Asp Glu Leu Asn Leu Ser Asp Asn Asn Asn Leu Glu Glu			
	195	200	205
Leu Pro Asn Asp Val Phe Gln Gly Ala Ser Gly Pro Val Ile Leu Asp			
	210	215	220
Ile Ser Arg Thr Lys Val His Ser Leu Pro Asn His Gly Leu Glu Asn			
225	230	235	240
Leu Lys Lys Leu Arg Ala Arg Ser Thr Tyr Arg Leu Lys Lys Leu Pro			
	245	250	255
Asn Leu Asp Lys Phe Val Thr Leu Met Glu Ala Ser Leu Thr Tyr Pro			
	260	265	270
Ser His Cys Cys Ala Phe Ala Asn Leu Lys Arg Gln Ile Ser Glu Leu			
	275	280	285
His Pro Ile Cys Asn Lys Ser Ile Leu Arg Gln Asp Ile Asp Asp Met			
	290	295	300
Thr Gln Ile Gly Asp Gln Arg Val Ser Leu Ile Asp Asp Glu Pro Ser			
305	310	315	320



Tyr	Gly	Lys	Gly	Ser	Asp	Met	Met	Tyr	Asn	Glu	Phe	Asp	Tyr	Asp	Leu	325	330	335	
Cys	Asn	Glu	Val	Val	Asp	Val	Thr	Cys	Ser	Pro	Lys	Pro	Asp	Ala	Phe	340	345	350	
Asn	Pro	Cys	Glu	Asp	Ile	Met	Gly	Tyr	Asn	Ile	Leu	Arg	Val	Leu	Ile	355	360	365	
Trp	Phe	Ile	Ser	Ile	Leu	Ala	Ile	Thr	Gly	Asn	Thr	Thr	Val	Leu	Val	370	375	380	
Val	Leu	Thr	Thr	Ser	Gln	Tyr	Lys	Leu	Thr	Val	Pro	Arg	Phe	Leu	Met	385	390	395	400
Cys	Asn	Leu	Ala	Phe	Ala	Asp	Leu	Cys	Ile	Gly	Ile	Tyr	Leu	Leu	Leu	405	410	415	
Ile	Ala	Ser	Val	Asp	Ile	His	Thr	Lys	Ser	Gln	Tyr	His	Asn	Tyr	Ala	420	425	430	
Ile	Asp	Trp	Gln	Thr	Gly	Ala	Gly	Cys	Asp	Ala	Ala	Gly	Phe	Phe	Thr	435	440	445	
Val	Phe	Ala	Ser	Glu	Leu	Ser	Val	Tyr	Thr	Leu	Thr	Ala	Ile	Thr	Leu	450	455	460	
Glu	Arg	Trp	His	Thr	Ile	Thr	His	Ala	Met	Gln	Leu	Glu	Cys	Lys	Val	465	470	475	480
Gln	Leu	Arg	His	Ala	Ala	Ser	Val	Met	Val	Leu	Gly	Trp	Thr	Phe	Ala	485	490	495	
Phe	Ala	Ala	Ala	Leu	Phe	Pro	Ile	Phe	Gly	Ile	Ser	Ser	Tyr	Met	Lys	500	505	510	
Val	Ser	Ile	Cys	Leu	Pro	Met	Asp	Ile	Asp	Ser	Pro	Leu	Ser	Gln	Leu	515	520	525	
Tyr	Val	Met	Ala	Leu	Leu	Val	Leu	Asn	Val	Leu	Ala	Phe	Val	Val	Ile	530	535	540	
Cys	Gly	Cys	Tyr	Thr	His	Ile	Tyr	Leu	Thr	Val	Arg	Asn	Pro	Thr	Ile	545	550	555	560
Val	Ser	Ser	Ser	Ser	Asp	Thr	Lys	Ile	Ala	Lys	Arg	Met	Ala	Thr	Leu	565	570	575	

Ile Phe Thr Asp Phe Leu Cys Met Ala Pro Ile Ser Phe Phe Ala Ile  
 580 585 590  
 Ser Ala Ser Leu Lys Val Pro Leu Ile Thr Val Ser Lys Ala Lys Ile  
 595 600 605  
 Leu Leu Val Leu Phe Tyr Pro Ile Asn Ser Cys Ala Asn Pro Phe Leu  
 610 615 620  
 Tyr Ala Ile Phe Thr Lys Asn Phe Arg Arg Asp Phe Phe Ile Leu Leu  
 625 630 635 640  
 Ser Lys Phe Gly Cys Tyr Glu Met Gln Ala Gln Ile Tyr Arg Thr Glu  
 645 650 655  
 Thr Ser Ser Ala Thr His Asn Phe His Ala Arg Lys Ser His Cys Ser  
 660 665 670  
 Ser Ala Pro Arg Val Thr Asn Ser Tyr Val Leu Val Pro Leu Asn His  
 675 680 685  
 Ser Ser Gln Asn  
 690  
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 <213> Rattus norvegicus  
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 Gly Cys His His Trp Leu Cys His Cys Ser Asn Arg Val Phe Leu Cys  
 20 25 30  
 Gln Asp Ser Lys Val Thr Glu Ile Pro Thr Asp Leu Pro Arg Asn Ala  
 35 40 45  
 Ile Glu Leu Arg Phe Val Leu Thr Lys Leu Arg Val Ile Pro Lys Gly  
 50 55 60  
 Ser Phe Ala Gly Phe Gly Asp Leu Glu Lys Ile Glu Ile Ser Gln Asn  
 65 70 75 80  
 Asp Val Leu Glu Val Ile Glu Ala Asp Val Phe Ser Asn Leu Pro Lys  
 85 90 95

Leu His Glu Ile Arg Ile Glu Lys Ala Asn Asn Leu Leu Tyr Ile Asn  
 100 105 110

Pro Glu Ala Phe Gln Asn Leu Pro Ser Leu Arg Tyr Leu Leu Ile Ser  
 115 120 125

Asn Thr Gly Ile Lys His Leu Pro Ala Val His Lys Ile Gln Ser Leu  
 130 135 140

Gln Lys Val Leu Leu Asp Ile Gln Asp Asn Ile Asn Ile His Ile Val  
 145 150 155 160

Ala Arg Asn Ser Phe Met Gly Leu Ser Phe Glu Trp Leu Ser Lys Asn  
 165 170 175

Gly Ile Glu Glu Ile His Asn Cys Ala Phe Asn Gly Thr Gln Leu Asp  
 180 185 190

Glu Leu Asn Leu Ser Asp Asn Asn Asn Leu Glu Glu Leu Pro Asn Asp  
 195 200 205

Val Phe Gln Gly Ala Ser Gly Pro Val Ile Leu Asp Ile Ser Arg Thr  
 210 215 220

Lys Val His Ser Leu Pro Asn His Gly Leu Glu Asn Leu Lys Lys Leu  
 225 230 235 240

Arg Ala Arg Ser Thr Tyr Arg Trp Lys Lys Leu Pro Asn Leu Asp Lys  
 245 250 255

Phe Val Thr Leu Met Glu Ala Ser Leu Thr Tyr Pro Ser His Cys Cys  
 260 265 270

Ala Phe Ala Asn Leu Lys Arg Gln Ile Ser Glu Leu His Pro Ile Cys  
 275 280 285

Asn Lys Ser Ile Leu Arg Gln Asp Ile Asp Asp Met Thr Gln Ile Gly  
 290 295 300

Asp Gln Arg Val Ser Leu Ile Asp Asp Glu Pro Ser Tyr Gly Lys Gly  
 305 310 315 320

Ser Asp Met Met Tyr Asn Glu Phe Asp Tyr Asp Leu Cys Asn Glu Val  
 325 330 335

Val Asp Val Thr Cys Ser Pro Lys Pro Asp Ala Phe Asn Pro Cys Glu  
 340 345 350

Asp Ile Met Gly Tyr Asn Ile Leu Arg Val Leu Ile Trp Phe Ile Ser  
 355 360 365  
 Ile Leu Ala Ile Thr Gly Asn Thr Thr Val Leu Val Val Leu Thr Thr  
 370 375 380  
 Ser Gln Tyr Lys Leu Thr Val Pro Arg Phe Leu Met Cys Asn Leu Ala  
 385 390 395 400  
 Phe Ala Asp Leu Cys Ile Gly Ile Tyr Leu Leu Leu Ile Ala Ser Val  
 405 410 415  
 Asp Ile His Thr Lys Ser Gln Tyr His Asn Tyr Ala Ile Asp Trp Gln  
 420 425 430  
 Thr Gly Ala Gly Cys Asp Ala Ala Gly Phe Phe Thr Val Phe Ala Ser  
 435 440 445  
 Glu Leu Ser Val Tyr Thr Leu Thr Ala Ile Thr Leu Glu Arg Trp His  
 450 455 460  
 Thr Ile Thr His Ala Met Gln Leu Glu Cys Lys Val Gln Leu Arg His  
 465 470 475 480  
 Ala Ala Ser Val Met Val Leu Gly Trp Thr Phe Ala Phe Ala Ala Ala  
 485 490 495  
 Leu Phe Pro Ile Phe Gly Ile Ser Ser Tyr Met Lys Val Ser Ile Cys  
 500 505 510  
 Leu Pro Met Asp Ile Asp Ser Pro Leu Ser Gln Leu Tyr Val Met Ala  
 515 520 525  
 Leu Leu Val Leu Asn Val Leu Ala Phe Val Val Ile Cys Gly Cys Tyr  
 530 535 540  
 Thr His Ile Tyr Leu Thr Val Arg Asn Pro Thr Ile Val Ser Ser Ser  
 545 550 555 560  
 Ser Asp Thr Lys Ile Ala Lys Arg Met Ala Thr Leu Ile Phe Thr Asp  
 565 570 575  
 Phe Leu Cys Met Ala Pro Ile Ser Phe Phe Ala Ile Ser Ala Ser Leu  
 580 585 590  
 Lys Val Pro Leu Ile Thr Val Ser Lys Ala Lys Ile Leu Leu Val Leu  
 595 600 605

Phe Tyr Pro Ile Asn Ser Cys Ala Asn Pro Phe Leu Tyr Ala Ile Phe  
610 615 620

Thr Lys Asn Phe Arg Arg Asp Phe Phe Ile Leu Leu Ser Lys Phe Gly  
625 630 635 640

Cys Tyr Glu Met Gln Ala Gln Ile Tyr Arg Thr Glu Thr Ser Ser Ala  
645 650 655

Thr His Asn Phe His Ala Arg Lys Ser His Cys Ser Ser Ala Pro Arg  
660 665 670

Val Thr Asn Ser Tyr Val Leu Val Pro Leu Asn His Ser Ser Gln Asn  
675 680 685

<210> 13

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<212> PRT

<213> Equus asinus

<400> 13

Met Ala Leu Leu Leu Val Ser Leu Leu Ala Phe Leu Ser Leu Gly Ser  
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Gly Cys His His Gln Val Cys His Tyr Ser Asn Arg Val Phe Leu Cys  
20 25 30

Gln Glu Ser Lys Val Thr Glu Ile Pro Ser Asp Leu Pro Arg Asn Ala  
35 40 45

Leu Glu Leu Arg Phe Val Leu Thr Lys Leu Arg Val Ile Pro Lys Gly  
50 55 60

Ala Phe Ser Gly Phe Gly Asp Leu Lys Lys Ile Glu Ile Ser Gln Asn  
65 70 75 80

Asp Val Leu Glu Val Ile Glu Ala Asn Val Phe Ser Asn Leu Pro Lys  
85 90 95

Leu His Glu Ile Arg Ile Glu Lys Ala Asn Asn Leu Leu Tyr Ile Asp  
100 105 110

His Asp Ala Phe Gln Asn Leu Pro Asn Leu Gln Tyr Leu Leu Ile Ser

115	120	125
Asn Thr Gly Ile Lys His Leu Pro Ala Val His Lys Ile Gln Ser Leu		
130	135	140
Gln Lys Val Leu Leu Asp Ile Gln Asp Asn Ile Asn Ile His Ile Val		
145	150	155 160
Glu Arg Asn Ser Phe Met Gly Leu Ser Phe Glu Ser Met Ile Leu Arg		
	165	170 175
Leu Ser Lys Asn Gly Ile Gln Glu Ile His Asn Cys Ala Phe Asn Gly		
	180	185 190
Thr Gln Leu Asp Glu Leu Asn Leu Ser Asp Asn Asn Asn Leu Glu Glu		
	195	200 205
Leu Pro Asn Asp Val Phe Gln Gly Ala Ser Gly Pro Val Ile Leu Asp		
	210	215 220
Ile Ser Gly Thr Arg Ile His Ser Leu Pro Asn Tyr Gly Leu Glu Asn		
225	230	235 240
Leu Lys Lys Leu Arg Ala Arg Ser Thr Tyr Asn Leu Lys Lys Leu Pro		
	245	250 255
Ser Leu Glu Lys Phe Val Ala Leu Met Glu Ala Ser Leu Thr Tyr Pro		
	260	265 270
Ser His Cys Cys Ala Phe Ala Asn Trp Arg Gln Gln Thr Ser Glu Leu		
	275	280 285
Gln Thr Thr Cys Asn Lys Ser Ile Leu Arg Gln Glu Val Asp Met Thr		
	290	295 300
Gln Ala Arg Gly Glu Arg Val Ser Leu Ala Glu Asp Asp Glu Ser Met		
305	310	315 320
Met Tyr Ser Glu Phe Asp Tyr Asp Leu Cys Asn Glu Val Val Asp Val		
	325	330 335
Thr Cys Ser Pro Lys Pro Asp Ala Phe Asn Pro Cys Glu Asp Ile Met		
	340	345 350
Gly Tyr Asp Ile Leu Arg Val Leu Ile Trp Phe Ile Ser Ile Leu Ala		
	355	360 365
Ile Thr Gly Asn Ile Ile Val Leu Val Ile Leu Ile Thr Ser Gln Tyr		

370	375	380
Lys Leu Thr Val Pro Arg Phe Leu Met Cys Asn Leu Ala Phe Ala Asp		
385	390	395 400
Leu Cys Ile Gly Ile Tyr Leu Leu Leu Ile Ala Ser Val Asp Ile His		
	405	410 415
Thr Lys Ser Gln Tyr His Asn Tyr Ala Ile Asp Trp Gln Thr Gly Ala		
	420	425 430
Gly Cys Asp Ala Ala Gly Phe Phe Thr Val Phe Gly Ser Glu Leu Ser		
	435	440 445
Val Tyr Thr Leu Thr Ala Ile Thr Leu Glu Arg Trp His Thr Ile Thr		
	450	455 460
His Ala Met Gln Leu Glu Cys Lys Val Gln Leu Arg His Ala Ala Ser		
465	470	475 480
Val Met Leu Val Gly Trp Ile Phe Gly Phe Gly Val Gly Leu Leu Pro		
	485	490 495
Ile Phe Gly Ile Ser Thr Tyr Met Lys Val Ser Ile Cys Leu Pro Met		
	500	505 510
Asp Ile Asp Ser Pro Leu Ser Gln Leu Tyr Val Met Ser Leu Leu Val		
	515	520 525
Leu Asn Val Leu Ala Phe Val Val Ile Cys Gly Cys Tyr Thr His Ile		
	530	535 540
Tyr Leu Thr Val Arg Asn Pro Asn Ile Val Ser Ser Ser Ser Asp Thr		
545	550	555 560
Lys Ile Ala Lys Arg Met Gly Ile Leu Ile Phe Thr Asp Phe Leu Cys		
	565	570 575
Met Ala Pro Ile Ser Phe Phe Gly Ile Ser Ala Ser Leu Lys Val Ala		
	580	585 590
Leu Ile Thr Val Ser Lys Ser Lys Ile Leu Leu Val Leu Phe Tyr Pro		
	595	600 605
Ile Asn Ser Cys Ala Asn Pro Phe Leu Tyr Ala Ile Phe Thr Lys Asn		
610	615	620
Phe Arg Arg Asp Phe Phe Ile Leu Leu Ser Lys Phe Gly Cys Tyr Glu		

625	630	635	640
Met Gln Ala Gln Thr Tyr Arg Thr Glu Thr Ser Ser Thr Gly His Ile			
	645	650	655
Ser His Pro Lys Asn Gly Pro Cys Pro Pro Thr Pro Arg Val Thr Asn			
	660	665	670
Gly Ala Asn Cys Thr Leu Val Pro Leu Ser His Leu Ala Gln Asn			
	675	680	685
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<212> PRT			
<213> CHICKEN			
<400> 14			
Met Ser Leu Gly Leu Thr Cys Leu Leu Ile Leu Leu Ala Ser Cys Ser			
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Gly Cys Gln His His Thr Cys Leu Cys Glu Gly Arg Ile Phe Ile Cys			
	20	25	30
Gln Glu Ile Lys Val Val Gln Leu Pro Arg Asp Ile Pro Thr Asn Ala			
	35	40	45
Thr Glu Leu Arg Phe Val Leu Thr Lys Met Arg Val Ile Pro Lys Gly			
	50	55	60
Ala Phe Thr Gly Leu His Asp Leu Glu Lys Ile Glu Ile Ser Gln Asn			
	65	70	75
Asp Ala Leu Glu Ile Ile Glu Gly Asn Val Phe Ser Ser Leu Pro Lys			
	85	90	95
Leu His Glu Ile Arg Ile Glu Lys Ala Asn Lys Leu Met Lys Ile Asp			
	100	105	110
Gln Asp Ala Phe Gln His Leu Pro Ser Leu Arg Tyr Leu Leu Ile Ser			
	115	120	125
Asn Thr Gly Leu Ser Phe Leu Pro Val Val His Lys Val His Ser Phe			
	130	135	140
Gln Lys Val Leu Leu Asp Val Gln Asp Asn Ile His Ile Arg Thr Ile			
	145	150	155
			160



Glu	Arg	Asn	Thr	Phe	Met	Gly	Leu	Ser	Ser	Glu	Ser	Val	Ile	Leu	Arg	165	170	175	
Leu	Asn	Lys	Asn	Gly	Ile	Gln	Glu	Ile	Lys	Asp	His	Ala	Phe	Asn	Gly	180	185	190	
Thr	Cys	Leu	Asp	Glu	Leu	Asn	Leu	Ser	Asp	Asn	Tyr	Asn	Leu	Glu	Lys	195	200	205	
Leu	Pro	Glu	Lys	Val	Phe	Gln	Gly	Ala	Ile	Gly	Pro	Val	Val	Leu	Asp	210	215	220	
Ile	Ser	Arg	Thr	Arg	Ile	Ser	Phe	Leu	Pro	Ser	His	Gly	Leu	Glu	Phe	225	230	235	240
Ile	Lys	Lys	Leu	Arg	Ala	Arg	Ser	Thr	Tyr	Lys	Leu	Lys	Lys	Leu	Pro	245	250	255	
Asp	Val	Asn	Lys	Phe	Arg	Ser	Leu	Ile	Glu	Ala	Asn	Phe	Thr	Tyr	Pro	260	265	270	
Ser	His	Cys	Cys	Ala	Phe	Thr	Asn	Arg	Lys	Thr	Gln	Asn	Thr	Glu	Phe	275	280	285	
Tyr	Pro	Ile	Cys	Ser	Met	Ser	Pro	Ala	Lys	Gln	Asp	Leu	Gly	Glu	Gln	290	295	300	
Thr	Gly	Lys	Arg	Lys	His	Arg	Arg	Ser	Ala	Ala	Glu	Asp	Tyr	Ile	Ser	305	310	315	320
His	Tyr	Gly	Thr	Arg	Phe	Gly	Pro	Val	Glu	Asn	Glu	Phe	Asp	Tyr	Gly	325	330	335	
Leu	Cys	Asn	Glu	Val	Val	Asp	Phe	Val	Cys	Ser	Pro	Lys	Pro	Asp	Ala	340	345	350	
Phe	Asn	Pro	Cys	Glu	Asp	Ile	Met	Gly	Tyr	Asn	Val	Leu	Arg	Val	Leu	355	360	365	
Ile	Trp	Phe	Ile	Asn	Ile	Leu	Ala	Ile	Thr	Gly	Asn	Thr	Thr	Val	Leu	370	375	380	
Ile	Ile	Leu	Ile	Ser	Ser	Gln	Tyr	Lys	Leu	Thr	Val	Pro	Arg	Phe	Leu	385	390	395	400
Met	Cys	Asn	Leu	Ala	Phe	Ala	Asp	Leu	Cys	Ile	Gly	Ile	Tyr	Leu	Leu	405	410	415	

Phe	Ile	Ala	Ser	Val	Asp	Ile	Gln	Thr	Lys	Ser	Arg	Tyr	Tyr	Asn	Tyr	420	425	430
Ala	Ile	Asp	Trp	Gln	Thr	Gly	Ala	Gly	Cys	Asn	Ala	Ala	Gly	Phe	Phe	435	440	445
Thr	Val	Phe	Ala	Ser	Glu	Leu	Ser	Val	Tyr	Thr	Leu	Thr	Val	Ile	Thr	450	455	460
Leu	Glu	Arg	Trp	His	Thr	Ile	Thr	Tyr	Ala	Met	Gln	Leu	Asn	Arg	Lys	465	470	475 480
Val	Arg	Leu	Arg	His	Ala	Val	Ile	Ile	Met	Val	Phe	Gly	Trp	Met	Phe	485	490	495
Ala	Phe	Thr	Val	Ala	Leu	Leu	Pro	Ile	Phe	Gly	Ile	Ser	Ser	Tyr	Met	500	505	510
Lys	Val	Ser	Ile	Cys	Leu	Pro	Met	His	Ile	Glu	Thr	Pro	Phe	Ser	Gln	515	520	525
Ala	Tyr	Val	Ile	Phe	Leu	Leu	Val	Leu	Asn	Val	Leu	Ala	Phe	Val	Ile	530	535	540
Ile	Cys	Ile	Cys	Tyr	Ile	Cys	Ile	Tyr	Phe	Thr	Val	Arg	Asn	Pro	Asn	545	550	555 560
Val	Ile	Ser	Ser	Asn	Ser	Asp	Thr	Lys	Ile	Ala	Lys	Arg	Met	Ala	Ile	565	570	575
Leu	Ile	Phe	Thr	Asp	Phe	Leu	Cys	Met	Ala	Pro	Ile	Ser	Phe	Phe	Ala	580	585	590
Ile	Ser	Ala	Ser	Leu	Arg	Val	Pro	Leu	Ile	Thr	Val	Ser	Lys	Ser	Lys	595	600	605
Ile	Leu	Leu	Val	Leu	Phe	Tyr	Pro	Ile	Asn	Ser	Cys	Ala	Asn	Pro	Phe	610	615	620
Leu	Tyr	Ala	Ile	Phe	Thr	Lys	Thr	Phe	Arg	Arg	Asp	Phe	Phe	Ile	Leu	625	630	635 640
Leu	Ser	Lys	Phe	Gly	Cys	Cys	Glu	Met	Gln	Ala	Gln	Ile	Tyr	Arg	Thr	645	650	655
Glu	Thr	Ser	Ser	Ser	Ala	His	Asn	Phe	His	Thr	Arg	Asn	Gly	His	Tyr	660	665	670

Pro Thr Ala Ser Lys Asn Ser Asp Gly Thr Ile Tyr Ser Leu Val Pro  
 675 680 685

Leu Asn His Leu Asn  
 690

<210> 15  
 <211> 676  
 <212> PRT  
 <213> Callithrix jacchus

<400> 15  
 Met Lys Gln Pro Leu Leu Ala Leu Gln Leu Leu Lys Leu Leu Leu Leu  
 1 5 10 15

Leu Leu Leu Pro Leu Pro Pro Leu Pro Arg Ala Leu Arg Glu Ala Arg  
 20 25 30

Cys Cys Pro Glu Pro Cys Asn Cys Thr Pro Asp Gly Ala Leu Arg Cys  
 35 40 45

Pro Gly Pro Gly Ala Gly Leu Thr Arg Leu Ser Leu Ala Tyr Leu Pro  
 50 55 60

Val Lys Val Ile Pro Ser Gln Ala Phe Arg Gly Leu Asn Glu Val Ile  
 65 70 75 80

Lys Ile Glu Ile Ser Gln Ser Asp Ser Leu Glu Arg Ile Glu Ala Asn  
 85 90 95

Ala Phe Asp Asn Leu Leu Asn Leu Ser Glu Ile Leu Ile Gln Asn Thr  
 100 105 110

Lys Asn Leu Ile His Ile Glu Pro Gly Ala Phe Thr Asn Leu Pro Arg  
 115 120 125

Leu Lys Tyr Leu Ser Ile Cys Asn Thr Gly Ile Arg Lys Phe Pro Asp  
 130 135 140

Val Thr Lys Ile Phe Ser Ser Glu Thr Asn Phe Ile Leu Glu Ile Cys  
 145 150 155 160

Asp Asn Leu His Ile Thr Thr Ile Pro Gly Asn Ala Phe Gln Gly Met  
 165 170 175

Asn Asn Glu Ser Ile Thr Leu Lys Leu Tyr Gly Asn Gly Phe Glu Glu  
 180 185 190

Val	Gln	Ser	His	Ala	Phe	Asn	Gly	Thr	Thr	Val	Ile	Ser	Leu	Val	Leu	195	200	205	
Lys	Glu	Asn	Val	His	Leu	Glu	Arg	Ile	His	Asn	Gly	Ala	Phe	Arg	Gly	210	215	220	
Ala	Thr	Gly	Pro	Ser	Ile	Leu	Asp	Ile	Ser	Ser	Thr	Lys	Leu	Gln	Ala	225	230	235	240
Leu	Pro	Ser	His	Gly	Leu	Glu	Ser	Ile	Gln	Thr	Leu	Ile	Ala	Thr	Ser	245	250	255	
Ser	Tyr	Ser	Leu	Lys	Lys	Leu	Pro	Ser	Arg	Glu	Lys	Phe	Ala	Asn	Leu	260	265	270	
Leu	Asp	Ala	Thr	Leu	Thr	Tyr	Pro	Ser	His	Cys	Cys	Ala	Phe	Arg	Asn	275	280	285	
Val	Pro	Thr	Lys	Asp	Tyr	Pro	Ala	Ile	Phe	Ala	Glu	Ser	Gly	Gln	Ser	290	295	300	
Gly	Trp	Asp	Tyr	Asp	Tyr	Gly	Phe	His	Leu	Pro	Lys	Thr	Pro	Arg	Cys	305	310	315	320
Ala	Pro	Glu	Pro	Asp	Ala	Phe	Asn	Pro	Cys	Glu	Asp	Ile	Met	Gly	Tyr	325	330	335	
Asp	Phe	Leu	Arg	Val	Leu	Ile	Trp	Leu	Ile	Asn	Ile	Leu	Ala	Ile	Met	340	345	350	
Gly	Asn	Met	Thr	Val	Leu	Phe	Val	Leu	Leu	Thr	Ser	Arg	Tyr	Lys	Leu	355	360	365	
Thr	Val	Pro	Arg	Phe	Leu	Met	Cys	Asn	Leu	Ser	Phe	Ala	Asp	Phe	Cys	370	375	380	
Met	Gly	Leu	Tyr	Leu	Leu	Leu	Ile	Ala	Ser	Val	Asp	Ser	Gln	Thr	Lys	385	390	395	400
Gly	Gln	Tyr	Tyr	Asn	His	Ala	Ile	Asp	Trp	Gln	Thr	Gly	Ser	Gly	Cys	405	410	415	
Asn	Thr	Ala	Gly	Phe	Phe	Thr	Val	Phe	Ala	Ser	Glu	Leu	Ser	Val	Tyr	420	425	430	
Thr	Leu	Thr	Val	Ile	Thr	Leu	Glu	Arg	Trp	His	Thr	Ile	Thr	Tyr	Ala	435	440	445	

Ile	His	Leu	Asp	Gln	Lys	Leu	Arg	Leu	Arg	His	Ala	Ile	Leu	Ile	Met	450	455	460
Leu	Gly	Gly	Trp	Leu	Phe	Ser	Ser	Leu	Ile	Ala	Met	Leu	Pro	Leu	Val	465	470	475 480
Gly	Val	Ser	Asn	Tyr	Met	Lys	Val	Ser	Ile	Cys	Leu	Pro	Met	His	Ile	485	490	495
Glu	Thr	Pro	Phe	Ser	Gln	Ala	Tyr	Val	Ile	Phe	Leu	Leu	Val	Leu	Asn	500	505	510
Val	Leu	Ala	Phe	Val	Ile	Ile	Cys	Ile	Cys	Tyr	Ile	Cys	Ile	Tyr	Phe	515	520	525
Thr	Val	Arg	Asn	Pro	Asn	Val	Ile	Ser	Ser	Asn	Ser	Asp	Thr	Lys	Ile	530	535	540
Ala	Lys	Lys	Met	Ala	Ile	Leu	Ile	Phe	Thr	Asp	Phe	Thr	Cys	Met	Ala	545	550	555 560
Pro	Ile	Ser	Phe	Phe	Ala	Ile	Ser	Ala	Ala	Phe	Lys	Met	Pro	Leu	Ile	565	570	575
Thr	Val	Thr	Asn	Ser	Lys	Val	Leu	Leu	Val	Leu	Phe	Tyr	Pro	Ile	Asn	580	585	590
Ser	Cys	Ala	Asn	Pro	Phe	Leu	Tyr	Ala	Ile	Phe	Thr	Lys	Thr	Phe	Arg	595	600	605
Arg	Asp	Phe	Phe	Leu	Leu	Leu	Gly	Lys	Phe	Gly	Cys	Cys	Lys	His	Arg	610	615	620
Ala	Glu	Leu	Tyr	Arg	Arg	Lys	Asp	Phe	Ser	Ala	Tyr	Thr	Ser	Asn	Tyr	625	630	635 640
Lys	Asn	Gly	Phe	Thr	Gly	Ser	Ser	Lys	Pro	Ser	Gln	Ser	Thr	Leu	Lys	645	650	655
Leu	Pro	Ala	Leu	His	Cys	Gln	Gly	Thr	Ala	Leu	Leu	Asp	Lys	Thr	Cys	660	665	670
Tyr	Lys	Glu	Tyr													675		

<210> 16

<211> 907  
 <212> PRT  
 <213> HUMAN

<400> 16

Met	Asp	Thr	Ser	Arg	Leu	Gly	Val	Leu	Leu	Ser	Leu	Pro	Val	Leu	Leu
1				5				10						15	
Gln	Leu	Ala	Thr	Gly	Gly	Ser	Ser	Pro	Arg	Ser	Gly	Val	Leu	Leu	Arg
			20					25					30		
Gly	Cys	Pro	Thr	His	Cys	His	Cys	Glu	Pro	Asp	Gly	Arg	Met	Leu	Leu
		35					40					45			
Arg	Val	Asp	Cys	Ser	Asp	Leu	Gly	Leu	Ser	Glu	Leu	Pro	Ser	Asn	Leu
	50					55					60				
Ser	Val	Phe	Thr	Ser	Tyr	Leu	Asp	Leu	Ser	Met	Asn	Asn	Ile	Ser	Gln
65					70					75				80	
Leu	Leu	Pro	Asn	Pro	Leu	Pro	Ser	Leu	Arg	Phe	Leu	Glu	Glu	Leu	Arg
			85						90					95	
Leu	Ala	Gly	Asn	Ala	Leu	Thr	Tyr	Ile	Pro	Lys	Gly	Ala	Phe	Thr	Gly
			100					105						110	
Leu	Tyr	Ser	Leu	Lys	Val	Leu	Met	Leu	Gln	Asn	Asn	Gln	Leu	Arg	His
	115						120					125			
Val	Pro	Thr	Glu	Ala	Leu	Gln	Asn	Leu	Arg	Ser	Leu	Gln	Ser	Leu	Arg
	130					135					140				
Leu	Asp	Ala	Asn	His	Ile	Ser	Tyr	Val	Pro	Pro	Ser	Cys	Phe	Ser	Gly
145					150					155				160	
Leu	His	Ser	Leu	Arg	His	Leu	Trp	Leu	Asp	Asp	Asn	Ala	Leu	Thr	Glu
			165					170						175	
Ile	Pro	Val	Gln	Ala	Phe	Arg	Ser	Leu	Ser	Ala	Leu	Gln	Ala	Met	Thr
		180						185					190		
Leu	Ala	Leu	Asn	Lys	Ile	His	His	Ile	Pro	Asp	Tyr	Ala	Phe	Gly	Asn
	195						200					205			
Leu	Ser	Ser	Leu	Val	Val	Leu	His	Leu	His	Asn	Asn	Arg	Ile	His	Ser
	210						215				220				
Leu	Gly	Lys	Lys	Cys	Phe	Asp	Gly	Leu	His	Ser	Leu	Glu	Thr	Leu	Asp

225		230		235		240
Leu Asn Tyr Asn Asn Leu Asp Glu Phe Pro Thr Ala Ile Arg Thr Leu						
	245		250		255	
Ser Asn Leu Lys Glu Leu Gly Phe His Ser Asn Asn Ile Arg Ser Ile						
	260		265		270	
Pro Glu Lys Ala Phe Val Gly Asn Pro Ser Leu Ile Thr Ile His Phe						
	275		280		285	
Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln His Leu						
	290		295		300	
Pro Glu Leu Arg Thr Leu Thr Leu Asn Gly Ala Ser Gln Ile Thr Glu						
305		310		315		320
Phe Pro Asp Leu Thr Gly Thr Ala Asn Leu Glu Ser Leu Thr Leu Thr						
	325		330		335	
Gly Ala Gln Ile Ser Ser Leu Pro Gln Thr Val Cys Asn Gln Leu Pro						
	340		345		350	
Asn Leu Gln Val Leu Asp Leu Ser Tyr Asn Leu Leu Glu Asp Leu Pro						
	355		360		365	
Ser Phe Ser Val Cys Gln Lys Leu Gln Lys Ile Asp Leu Arg His Asn						
	370		375		380	
Glu Ile Tyr Glu Ile Lys Val Asp Thr Phe Gln Gln Leu Leu Ser Leu						
385		390		395		400
Arg Ser Leu Asn Leu Ala Trp Asn Lys Ile Ala Ile Ile His Pro Asn						
	405		410		415	
Ala Phe Ser Thr Leu Pro Ser Leu Ile Lys Leu Asp Leu Ser Ser Asn						
	420		425		430	
Leu Leu Ser Ser Phe Pro Ile Thr Gly Leu His Gly Leu Thr His Leu						
	435		440		445	
Lys Leu Thr Gly Asn His Ala Leu Gln Ser Leu Ile Ser Ser Glu Asn						
	450		455		460	
Phe Pro Glu Leu Lys Val Ile Glu Met Pro Tyr Ala Tyr Gln Cys Cys						
465		470		475		480
Ala Phe Gly Val Cys Glu Asn Ala Tyr Lys Ile Ser Asn Gln Trp Asn						

				485				490				495			
Lys	Gly	Asp	Asn	Ser	Ser	Met	Asp	Asp	Leu	His	Lys	Lys	Asp	Ala	Gly
500				505				510							
Met	Phe	Gln	Ala	Gln	Asp	Glu	Arg	Asp	Leu	Glu	Asp	Phe	Leu	Leu	Asp
515				520				525							
Phe	Glu	Glu	Asp	Leu	Lys	Ala	Leu	His	Ser	Val	Gln	Cys	Ser	Pro	Ser
530				535				540							
Pro	Gly	Pro	Phe	Lys	Pro	Cys	Glu	His	Leu	Leu	Asp	Gly	Trp	Leu	Ile
545				550				555				560			
Arg	Ile	Gly	Val	Trp	Thr	Ile	Ala	Val	Leu	Ala	Leu	Thr	Cys	Asn	Ala
565				570				575							
Leu	Val	Thr	Ser	Thr	Val	Phe	Arg	Ser	Pro	Leu	Tyr	Ile	Ser	Pro	Ile
580				585				590							
Lys	Leu	Leu	Ile	Gly	Val	Ile	Ala	Ala	Val	Asn	Met	Leu	Thr	Gly	Val
595				600				605							
Ser	Ser	Ala	Val	Leu	Ala	Gly	Val	Asp	Ala	Phe	Thr	Phe	Gly	Ser	Phe
610				615				620							
Ala	Arg	His	Gly	Ala	Trp	Trp	Glu	Asn	Gly	Val	Gly	Cys	His	Val	Ile
625				630				635				640			
Gly	Phe	Leu	Ser	Ile	Phe	Ala	Ser	Glu	Ser	Ser	Val	Phe	Leu	Leu	Thr
645				650				655							
Leu	Ala	Ala	Leu	Glu	Arg	Gly	Phe	Ser	Val	Lys	Tyr	Ser	Ala	Lys	Phe
660				665				670							
Glu	Thr	Lys	Ala	Pro	Phe	Ser	Ser	Leu	Lys	Val	Ile	Ile	Leu	Leu	Cys
675				680				685							
Ala	Leu	Leu	Ala	Leu	Thr	Met	Ala	Ala	Val	Pro	Leu	Leu	Gly	Gly	Ser
690				695				700							
Lys	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu	Pro	Leu	Pro	Phe	Gly	Glu	Pro
705				710				715				720			
Ser	Thr	Met	Gly	Tyr	Met	Val	Ala	Leu	Ile	Leu	Leu	Asn	Ser	Leu	Cys
725				730				735							
Phe	Leu	Met	Met	Thr	Ile	Ala	Tyr	Thr	Lys	Leu	Tyr	Cys	Asn	Leu	Asp



740	745	750
Lys Gly Asp Leu Glu Asn Ile Trp Asp Cys Ser Met Val Lys His Ile		
755	760	765
Ala Leu Leu Leu Phe Thr Asn Cys Ile Leu Asn Cys Pro Val Ala Phe		
770	775	780
Leu Ser Phe Ser Ser Leu Ile Asn Leu Thr Phe Ile Ser Pro Glu Val		
785	790	795 800
Ile Lys Phe Ile Leu Leu Val Val Val Pro Leu Pro Ala Cys Leu Asn		
805	810	815
Pro Leu Leu Tyr Ile Leu Phe Asn Pro His Phe Lys Glu Asp Leu Val		
820	825	830
Ser Leu Arg Lys Gln Thr Tyr Val Trp Thr Arg Ser Lys His Pro Ser		
835	840	845
Leu Met Ser Ile Asn Ser Asp Asp Val Glu Lys Gln Ser Cys Asp Ser		
850	855	860
Thr Gln Ala Leu Val Thr Phe Thr Ser Ser Ser Ile Thr Tyr Asp Leu		
865	870	875 880
Pro Pro Ser Ser Val Pro Ser Pro Ala Tyr Pro Val Thr Glu Ser Cys		
885	890	895
His Leu Ser Ser Val Ala Phe Val Pro Cys Leu		
900	905	

<210> 17

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthesized peptide

<400> 17

Arg Ser Phe Ile Lys Ala Glu Asn Thr Thr His Ala Met Ser Ile Lys
1 5 10 15

<210> 18

<211> 22  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 18  
Asp Ile Lys Tyr Arg Gly Gln Tyr Gln Lys Tyr Ala Leu Leu Trp Met  
1 5 10 15

Glu Ser Val Gln Cys Arg  
20

<210> 19  
<211> 21  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 19  
Glu Lys Phe Leu Val Ile Val Phe Pro Phe Ser Asn Ile Arg Pro Gly  
1 5 10 15

Lys Arg Gln Thr Ser  
20

<210> 20  
<211> 32  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 20  
Asn Lys Asp Tyr Phe Gly Asn Phe Tyr Gly Lys Asn Gly Val Cys Phe  
1 5 10 15

Pro Leu Tyr Tyr Asp Gln Thr Glu Asp Ile Gly Ser Lys Gly Tyr Ser  
20 25 30

<210> 21  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 21  
Ser Ile Gln Lys Thr Ala Leu Gln Thr Thr Glu Val Arg Asn Cys Phe  
1 5 10 15  
Gly Arg Glu Val Ala Val Ala Asn Arg  
20 25

<210> 22  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 22  
Arg Val Glu Ile Pro Asp Thr Met Thr Ser Trp  
1 5 10

<210> 23  
<211> 60  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthesized  
peptide

<400> 23  
Thr Asn Phe Phe Lys Asp Lys Leu Lys Gln Leu Leu His Lys His Gln  
1 5 10 15

Arg Lys Ser Ile Phe Lys Ile Lys Lys Lys Ser Leu Ser Thr Ser Ile  
20 25 30

Val Trp Ile Glu Asp Ser Ser Ser Leu Lys Leu Gly Val Leu Asn Lys  
35 40 45

Ile Thr Leu Gly Asp Ser Ile Met Lys Pro Val Ser  
50 55 60

<210> 24  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GPCR21-F1  
forward primer

<400> 24  
tgtgttaagg ccacgctggt ag 22

<210> 25  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GPCR21-R1  
reverse primer

<400> 25  
tcactgtgat ggcaaggatg a 21

<210> 26  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GAPDH-F3  
forward primer

<400> 26  
agccgagcca catcgct 17

<210> 27  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GAPDH-R1  
reverse primer

<400> 27  
gtgaccaggc gcccaatac 19

<210> 28  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: GAPDH-PVIC  
Taqman(R) Probe

<400> 28  
caaatccggt gactccgacc ttcacctt 28

<210> 29  
<211> 99  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide 1

<220>  
<221> modified\_base  
<222> (25)..(84)  
<223> n=a or g or c or t; k=c or g or t

<400> 29  
cgaagcgtaa gggcccagcc ggccnnknnk nnknnknnkn nknnknnknn knnknnknnk 60  
nnknnknnkn nknnknnknn knkccgggt ccgggcggc 99

<210> 30

<211> 95  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide 2

<220>  
<221> modified\_base  
<222> (21)..(80)  
<223> n=a or g or c or t; v=c or a or g

<400> 30  
aaaaggaaaa aagcggccgc vnnvnnvnnv nnvnnvnnvn nvnnvnnvnn vnnvnnvnnv 60  
nnvnnvnnvn nvnnvnnvnn gccgcccga cccgg 95

<210> 31  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 31  
Pro Gly Pro Gly Gly  
1 5

<210> 32  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 32  
Asn Val Thr Leu Leu Ser Leu Lys Lys Asn Lys Ile His  
1 5 10

<210> 33  
<211> 13

<212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <400> 33  
 Cys Ile Arg His Ile Ser Arg Lys Ala Phe Phe Gly Leu  
   1                  5                  10  
  
  
 <210> 34  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <400> 34  
 His Asn Cys Ile Thr Thr Leu Arg Pro Gly Ile Phe Lys  
   1                  5                  10  
  
  
 <210> 35  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <400> 35  
 Pro Ile Thr Arg Ile Ser Gln Arg Leu Phe Thr Gly Leu  
   1                  5                  10  
  
  
 <210> 36  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 36  
Glu Lys Thr Phe Ser Ser Leu Lys Asn Leu Gly Glu Leu  
1 5 10

<210> 37  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 37  
Lys Asn Gln Phe Glu Ser Leu Lys Gln Leu Gln Ser Leu  
1 5 10

<210> 38  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 38  
Thr Thr His Ala Met Ser Ile Lys Ile Leu Cys Cys Ala  
1 5 10

<210> 39  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 39  
Ile Glu Asp Ser Ser Ser Leu Lys Leu Gly Val Leu Asn  
1 5 10



<210> 40  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 40  
Cys Asp Cys Lys Glu Thr Glu Leu Glu Cys Val Asn Gly Asp  
1 5 10

<210> 41  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 41  
Lys Asn Lys Ile His Ser Leu Pro Asp Lys Val Phe Ile Lys  
1 5 10

<210> 42  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 42  
Asp Leu Ser Ser Asn Thr Ile Thr Glu Leu Ser Pro His Leu  
1 5 10

<210> 43  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 43

Leu Thr Asp Gly Ile Ser Ser Phe Glu Asp Leu Leu Ala Asn  
1 5 10

<210> 44

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 44

Thr Asp Gly Ile Ser Ser Phe Glu Asp Leu Leu Ala Asn Asn  
1 5 10

<210> 45

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 45

Val Leu Asn Lys Ile Thr Leu Gly Asp Ser Ile Met Lys Pro  
1 5 10

<210> 46

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 46

Asn Ile Arg Pro Gly Lys Arg Gln Thr Ser Val Ile Leu Ile  
1 5 10

<210> 47  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 47  
Ser Ile Phe Lys Ile Lys Lys Lys Ser Leu Ser Thr Ser Ile  
1 5 10

<210> 48  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 48  
Tyr Phe Pro Cys Gly Asn Leu Thr Lys Cys Leu Pro Arg Ala  
1 5 10

<210> 49  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 49  
Pro Met Ile Ser Asn Asn Val Thr Leu Leu Ser Leu Lys Lys  
1 5 10

<210> 50  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 50

Ile Lys Tyr Leu Thr Asn Ser Thr Phe Leu Ser Cys Asp Ser  
1 5 10

<210> 51

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 51

Leu Leu Gln Lys Leu Asn Leu Ser Ser Asn Pro Leu Met Tyr  
1 5 10

<210> 52

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 52

Pro Gln Pro Met Lys Asn Leu Ser His Ile Tyr Phe Lys Asn  
1 5 10

<210> 53

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 53

Phe Ile Lys Ala Glu Asn Thr Thr His Ala Met Ser Ile Lys  
1 5 10

<210> 54

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 54

Trp Ala Thr Ile Phe Gly Thr Val His Gly Asn Ala Asn Ser Val Ala  
1 5 10 15

<210> 55

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 55

Phe Gly Thr Val His Gly Asn Ala Asn Ser Val Ala Leu Thr Gln Glu  
1 5 10 15

<210> 56

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 56

Asn Lys Asp Tyr Phe Gly Asn Phe Tyr Gly Lys Asn Gly Val Cys Phe  
1 5 10 15

<210> 57

<211> 16

<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 57

Ile Gly Tyr Ser Leu Gly Ile Phe Leu Gly Val Asn Leu Leu Ala Phe  
1 5 10 15

<210> 58

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic 5' primer

<400> 58

gcagcagcgg ccgcagaata ttgtctctggg ttatagc 37

<210> 59

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic 3' primer

<400> 59

gcagcagtcg acggaaactg gtttcattat actgtc 36

<210> 60

<211> 39

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic 5' primer

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gcagcagcgg ccgcatgttc tttctacttc atttcatcg

39

<210> 61

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic 3' primer

<400> 61

gcagcagtcg acggttgtga gagtatagag cattgg

36